

ABSTRACT OF THE DISCLOSURE

A compiler technique uses profile feedback to determine stride values for memory references, allowing prefetching of instructions for those loads that can be effectively prefetched. The compiler first identifies a set of loads, and instruments the loads to profile the difference between the successive load addresses in the current iteration and in the previous iteration. The frequency of stride difference is also profiled to allow the compiler to insert prefetching instructions for loads with near-constant strides. The compiler employs code analysis to determine the best prefetching distance, to reduce the profiling cost, and to reduce the prefetching overhead.